8.6 Summary of Cumulative Impacts

As shown throughout Chapter 8, DOE has examined many actions in the region to determine the potential for cumulative impacts. These impacts could arise from a variety of sources, including other activities in the area and reasonably foreseeable activities.

Table 8-60 summarizes cumulative impacts from all origins. Where qualitative descriptions are more meaningful, these have been included in lieu of quantitative values, although the quantitative values might be provided in this chapter. In other cases, the quantitative values have been provided to give a better representation of the potential impacts.

Table 8-60. Summary of cumulative impacts presented in Chapter 8 (page 1 of 2).

Discipline area	Cumulative impact
Land use and ownership	About 600 square kilometers (150,000 acres) of land would be withdrawn for the repository, but land is already under Federal control. Other actions in the area would cause additional withdrawals, but some land would also be returned under the Southern Nevada Public Land Management Act. Overall, total land withdrawal analyzed in this EIS is less than 0.5 percent of total Federal lands in Nevada.
Air quality	*Nonradiological:* Emissions from all sources would be less than applicable standards for repository activities. Emissions would also be below established standards for a mostly legal-weight truck transportation scenario. For a mostly rail scenario, criteria pollutants would be emitted during earthmoving operations for branch rail line or intermodal transfer station and highway upgrade construction projects. Cumulative impacts would be greatest for activities occurring in the Las Vegas air basin, which is currently in nonattainment for particulate matter (PM_{10}) and carbon monoxide. For rail implementing alternatives, emissions into the Las Vegas air basin would exceed emission standards only for construction of a Valley Modified branch rail line. Emission standards could be exceeded by up to 90 percent for PM_{10} and up to 60 percent for carbon monoxide. Emissions from upgrading highways for a Caliente/Las Vegas heavy-haul truck route could also exceed standards for the Las Vegas air basin. PM_{10} emissions could slightly exceed the standard and carbon monoxide could exceed the standard by 10 percent. All other activities would not cause emissions that exceeded emission standards. *Radiological:* Short-term air emissions from nearby facilities would result in a dose to the maximally exposed individual of no greater than 2.5 millirem per year. Emissions from past nuclear weapons testing could have resulted in a dose of 150 millirem over the lifetime of those individuals exposed during atmospheric weapons testing. Long-term atmospheric releases from the Nevada Test Site and Beatty Low-Level Waste Facility are not expected to result in a dose greater than 0.007 millirem per year in the future.
Hydrology	*Surface Water:* Cumulative impacts on surface water quality are not expected because of the transient nature of the surface water bodies around the repository. Minor changes to runoff and infiltration rates could occur. Construction of access routes at the repository site could have minor and localized effects on several washes at Yucca Mountain. Elsewhere in Nevada, routes being considered for the movement of waste to Yucca Mountain would pass through or near floodplains and wetlands and would be assessed in more detail once a route is selected. *Groundwater:* Groundwater demands from the repository are below the perennial yield of the western two-thirds of the Jackass Flats basin. When combined with Nevada Test Site activities, the annual water withdrawal (600 acre-feet) could exceed the lowest estimate of perennial yield but would not exceed highest estimate of perennial yield. No short-term impacts to groundwater quality are expected. Long-term impacts to groundwater could be as high as 0.007 millirem per year under the conservative assumption that impacts from the Nevada Test Site and the repository overlap spatially and chronologically.
Biological resources and soils	Disturbance of desert tortoise habitat would occur. Wildlife would be displaced as a result of repository and transportation activities that used additional land in the region. Little or no loss of wetland habitat is expected. No expected impacts to any species.
Cultural resources	Adverse impacts to cultural resources are not expected. Potential for encountering cultural resources exists along transportation corridors. DOE would use practices to avoid or mitigate adverse impacts in these areas.
Socioeconomics	As many as 3,400 direct jobs during peak employment year from repository activities. Intermodal transfer station or rail line in Lincoln County could change employment estimates by 5 percent.

Table 8-60. Summary of cumulative impacts presented in Chapter 8 (page 2 of 2).

Discipline area	Cumulative impact
Occupational and public health and safety	*Nonradiological:* Repository activities, including transportation, could result in up to 37 fatalities[a] from construction to closure of the repository.
	Radiological: Radiation exposure could result in up to 32 latent cancer fatalities[a] to workers. Short-term radiation exposure to the public could result in up to 5 latent cancer fatalities[a] in the population. Short-term radiation exposure to the maximally exposed individual could cause an increased cancer risk of about 1.2×10^{-6}. Emissions from past nuclear weapons testing could have caused an increased risk of about 7.5×10^{-5} for affected individuals. Long-term releases from the repository and other actions in the area could cause an increased risk of fatal cancer in the future of 0.000006 over the lifetime of an exposed individual.
Noise	Noise levels would be transient and would not be expected to cause adverse impacts for repository operation. Future development of the Timbisha Shoshone Trust Lands near Scottys Junction could result in residents of that parcel being subjected to transient noise from a candidate rail corridor through the parcel.
Aesthetics	Placement of exhaust stacks on top of Yucca Mountain could impact visual resources because stacks would be visible from some distance. If the stacks were equipped with beacons, the visual effect would be more noticeable at night. Disturbed areas would be likely on former Federal lands that are used for commercial and private purposes. Acquisition of private lands by the Federal Government could result in reduced aesthetics impacts and possible return of land to natural state.
Utilities, energy, materials, and site services	Peak electrical power demand would require upgrade to electrical transmission and distribution system. Other site systems and nearby suppliers of materials would be sufficient to meet repository and transportation needs. Construction of electrical generating facilities in the region surrounding the repository would increase the electrical generating capacity for the area.
Waste management	If nonradioactive, nonhazardous solid waste was disposed of at the Nevada Test Site, existing landfills would need to be expanded. Other waste types could be disposed of at nearby facilities without exceeding capacities of those facilities.
Environmental justice	No disproportionately high and adverse cumulative impacts to minority or low-income populations would occur for repository, transportation, or other activities. DOE recognizes that Native American people living in the region near Yucca Mountain have concerns about the protection of traditions and the spiritual integrity of the land that extend to the propriety of the proposed repository, and that implementing the Proposed Action would continue restrictions on access to the proposed site.

a. These values represent the maximum for each environmental resource area. Because the maximum could occur for different implementing alternatives in the various resource areas, simple addition of these maximums could overstate the impacts due to mixing of incompatible alternatives.

REFERENCES

Note: In an effort to ensure consistency among Yucca Mountain Project documents, DOE has altered the format of the references and some of the citations in the text in this Final EIS from those in the Draft EIS. The following list contains notes where applicable for references cited differently in the Draft EIS.

102043 AIWS 1998 — AIWS (American Indian Writers Subgroup) 1998. *American Indian Perspectives on the Yucca Mountain Site Characterization Project and the Repository Environmental Impact Statement.* Las Vegas, Nevada: Consolidated Group of Tribes and Organizations. ACC: MOL.19980420.0041.